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A NEW GENUS AND SPECIES OF FLEA BEETLE (COLEOPTERA: CHRYSOMELIDAE: ALTICINAE) FROM THE RAINFOREST CANOPY IN COSTA RICA

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Abstract.—***Laselva*, n. gen**, and ***Laselva triplehorni*, n. sp.**, are described and illustrated from the canopy of a lowland Atlantic rainforest in Costa Rica. The genus belongs to the "Sphaeronychini" of the Alticinae.

Key Words: La Selva, ALAS Project, morphology, rainforest canopy fogging, Sphaeronychini, Monoplatini

This new genus belongs to an unusual group of genera of the Alticinae often called the "Monoplatini or Sphaeronychini." This group has tradtitionally been placed near the end of the Alticinae in checklists (e.g., Seeno and Wilcox 1982) and cataloges (e.g., Heikertinger and Csiki 1939–40, Riley et al. 2003) – a kind of "cataloge phylogeny" without any explanation as to the reason for such placement. The genera included in the "Monoplatini or Sphaeronychini" may be monophyletic, but no true study of this has been undertaken. Morphologically this group of Alticinae genera is characterized by a globosely swollen apical metatarsal segment, closed procoxal cavities, and striate elytra often with thick or very dense patterned or colored pubescence. However, there has never been an accurate or comprehensive treatment of the Alticinae at a tribal level, so the use of tribal names is not really a true reflection of their classification. As discussed in Furth and Suzuki (1998), Furth and Lee (2000), and elsewhere, I prefer not to follow the classification scheme in Reid (1995) that uses the tribal terminology of Alticini and Galerucini within the Galerucinae. See Discussion section below for more details about the use of the name "Monoplatini and Sphaeronychini."

Species in the "Monoplatini/Sphaeronychini" are relatively uncommon in collections and especially rare as series of specimens (personal observation). I have long believed that this is because many or most live in the forest canopy. Furth et al. (2003) reported 247 species in 68 genera of Alticinae collected by various structured/quantitative sampling techniques from a single site (La Selva Biological Station, Costa Rica) over a 9-year period. This study showed that over such a long sampling period Malaise trapping was more efficient on a per-individual basis and canopy fogging was more efficient on a per-sample basis. This study also demonstrated that fogging multiple tree species captured species at a higher rate than fogging a single tree species when species accumulation curves were compared on a per-individ-

ual basis, but not when compared on a per-sample basis. In Furth et al. (2003), of the 247 species collected only 37 species showed a bias for being found by canopy fogging and only 23 of these species showed a strong bias (i.e., $p<0.001$) for the canopy, one of these was listed as "Monoplatini new genus" and is the subject of this paper.

Methods

The study site is La Selva Biological Station (Heredia, Costa Rica, 84° 01′W, 10° 26′N). It consists of a lowland Atlantic tropical rainforest of about 1500 hectares with elevations from 50–150 m and a mean annual rainfall of 4 m. The habitat is a mosaic of lowland rainforest, second growth forest of various ages and abandoned pastures (McDade et al. 1993).

The Alticinae inventory of La Selva was conducted as part of Project ALAS (http://viceroy.eeb.uconn.edu/ALAS/ALAS.html). Project ALAS was a large collaborative effort to survey the arthropods of La Selva Biological Station. A generalized set of sampling methods was applied to a wide range of arthropod taxa, from spiders and mites to many groups of Coleoptera, Diptera, Lepidoptera, and Hymenoptera. Field sampling and sample processing was been carried out largely by a resident staff of four persons recruited from communities surrounding La Selva and trained in entomological techniques (parataxonomists, *sensu* Janzen 1991). A relational database of collection, specimen, and identification data is managed using the biodiversity database application *Biota* (Colwell 1996). This project was a collaboration with the Instituto Nacional de Biodiversidad in Costa Rica (INBio, Gamez 1991). All specimens resulting from this project are labeled with INBio barcodes (in addition to standard locality labels). Specimens are deposited in the INBio collections facility in Santa Domingo de Heredia, Costa Rica, with the exception of those distributed to taxonomic specialists or collaborators, following INBio and Costa Rican regulations.

Canopy fogging sampling methods were described in Furth et al. (2003) and followed the general procedures of Erwin (1983), Adis et al. (1984), and Stork (1988). During the 1993–1994 sampling period, eighteen trees were selected for canopy fogging: six individual trees of the most common tree species at La Selva (*Pentaclethra macroloba* (Willd.) O. Ktze., Fabaceae), six individual trees of a species of intermediate abundance (*Virola koschnyi* Warb., Myristicaceae), and one individual each of trees from six additional families. Six areas dispersed across the available primary forest were chosen. In each area three trees were selected: a *Pentaclethra*, a *Virola*, and one of the six unique species. The three trees in a group were usually fogged on consecutive days, and the 6 groups were fogged at approximately two–month intervals over one calendar year. In October and November of 1994 a second sampling was done by fogging seven sets of three trees, all compressed into this two–month period instead of spread over a year. Again each group of three contained a *Pentaclethra macroloba*, a *Virola koschnyi*, and a distinct species in the "other" category. Another set of six samples was taken in late December 1999 and early January 2000. These were from diverse species in a variety of families, all from one area in primary forest. Finally, a set of six samples was taken in late December 1999 and early January 2000, all from one area in primary forest. Specimens were captured in funnels slung beneath tree crowns. Following fogging, a two-hour drop time was allowed. The fogging machine used a 3% solution of a natural pyrethrin insecticide with synergists, in a petroleum distillate carrier.

Specimens have three labels, one a general project locality label, a second with exact date, collecting code with the collecting method (FPM = fogging of *Pentaclethra macroloba*, FVK = fogging of *Virola koschnyi*, FOT = fogging of other species of trees), fogging event number, and funnel number, and the third is the project bar code. The holotype and some paratypes are deposited in the collection at the Instituto Nacional de Biodiversidad (INBio) in San José, Costa Rica. Other paratypes are deposited at the Department of Entomology, National Museum of Natural History, Smithsonian Institution, Washington, D. C. U.S.A. (USNM).

The numbers associated with the antennomeres are not actual measurements, they are relative numbers taken from the ocular scale in the Leitz MZ APO dissecting microscope used in this study to indicate the relative lengths of the antennomeres.

The photographs of the genitalia and metafemoral spring were taken with an Olympus BX50 compound microscope using Auto-Montage imaging software.

Results

Laselva Furth, new genus

Type species: *Laselva triplehorni* Furth.

Description.—General shape oval. Body size small, less than 2 mm in length. Entire dorsum, including head, densely evenly pubescent (Fig. 1). Head broad, densely, coarsely punctate; due to heavy punctation without apparent frontal bossae or frontal furrows; eyes large, oval, interocular distance relatively narrow, especially on vertex; antennae short only reaching elytral humeri, stout with apical 4–5 antennomeres apparently more swollen than previous antennomeres; mandibles narrow, apically tapering, each with 3 teeth. Pronotum wide at least twice as wide as long, lateral margins subparallel, only slightly narrowing anteriorly, only slightly narrower than base of elytra; punctation dense, coarse; seta in anterolateral, subapical pore approximately as long as pronotum. Elytra with strong humeri, prominent basal calli (*sensu* Scherer 1983; subbasal raised areas); striate with 10 rows (including scutellar row) of subcontiguous punctures; epipleuron strongly arched dorsally to receive metafemur. Metafemur very swollen and relatively large; pro and mesotarsi with minutely appendiculate claws; metatibia (Figs. 2, 3) extending significantly beyond tarsal insertion (a distance approximately equal to first tarsal segment length). Metatarsal apical segment distinctly swollen, subglobose (sometimes with minutely subrugose surface as in Figs. 2, 3); metatibial apex with stout spine. Procoxal cavities open. Metafemoral spring: *Psylliodes* Morpho-Group (Furth 1989; Furth and Suzuki 1994; Furth and Suzuki 1998) with extended arm of dorsal lobe very short (not extending much beyond apex of ventral lobe), apically depressed, basal edge of spring flat-sided at about a 70 degree angle to central axis of dorsal lobe, basal angle of ventral lobe narrow, pointed dorsally, with very distinct sclerotized recurved flange (Fig. 4), length = 0.28 mm.

Remarks.—This new genus differs in form from all other "Monoplatini/Sphaeronychini" relative to the antennae, eye shape and size, metabibae, elytral punctation and pubescence, and body shape and size. It most closely resembles *Distigmoptera* Blake and *Hypolampsis* Clark, but has open procoxal cavities. With *Distigmoptera* it shares antennal form of the apical 5 antennomeres short and swollen, dorsum with dense coarse punctation and dense pubescence, and epipleura strongly arched dorsally to accommodate greatly swollen metafemora; however, *Distigmoptera* has the dorsum with much denser pubescence

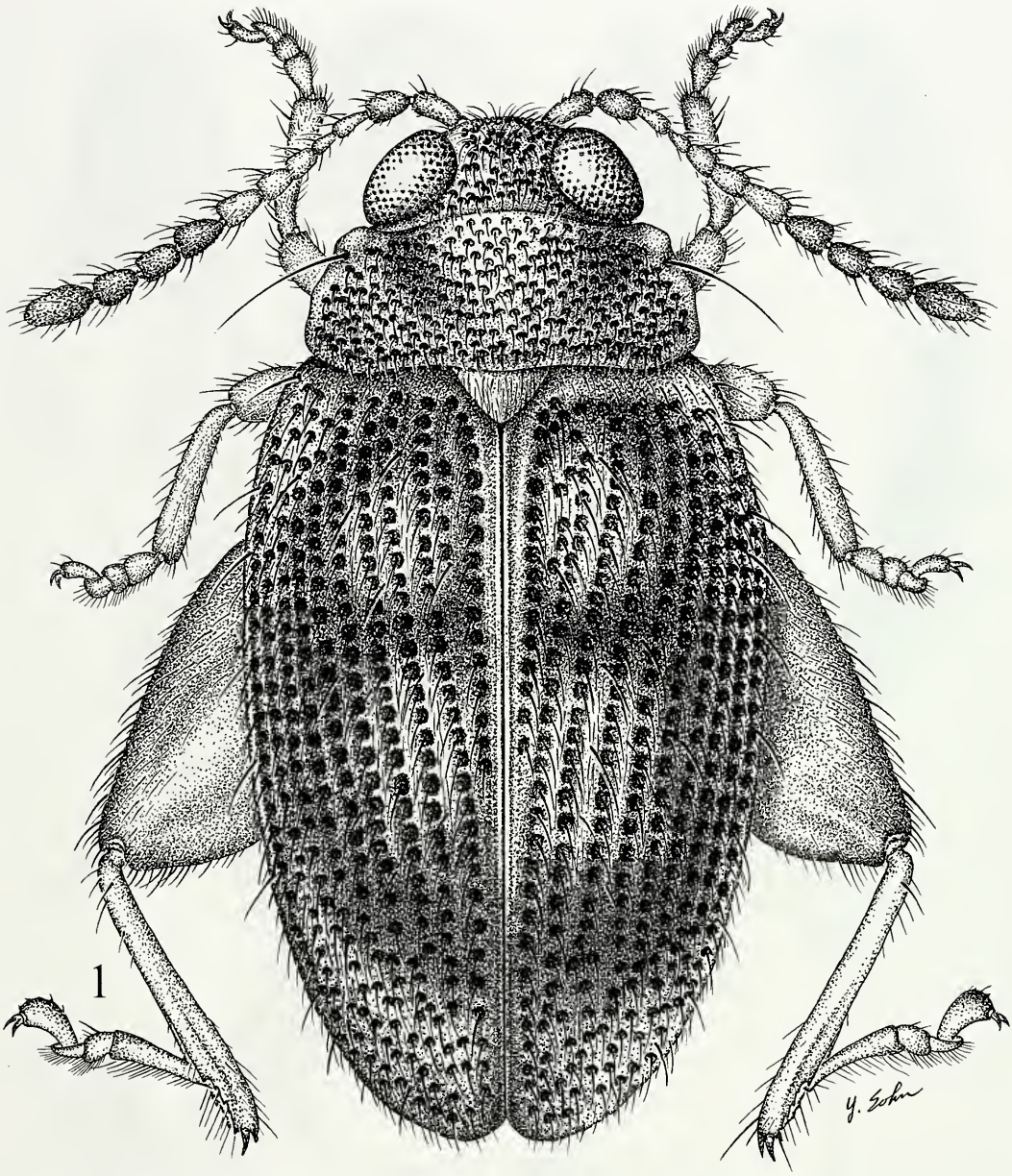
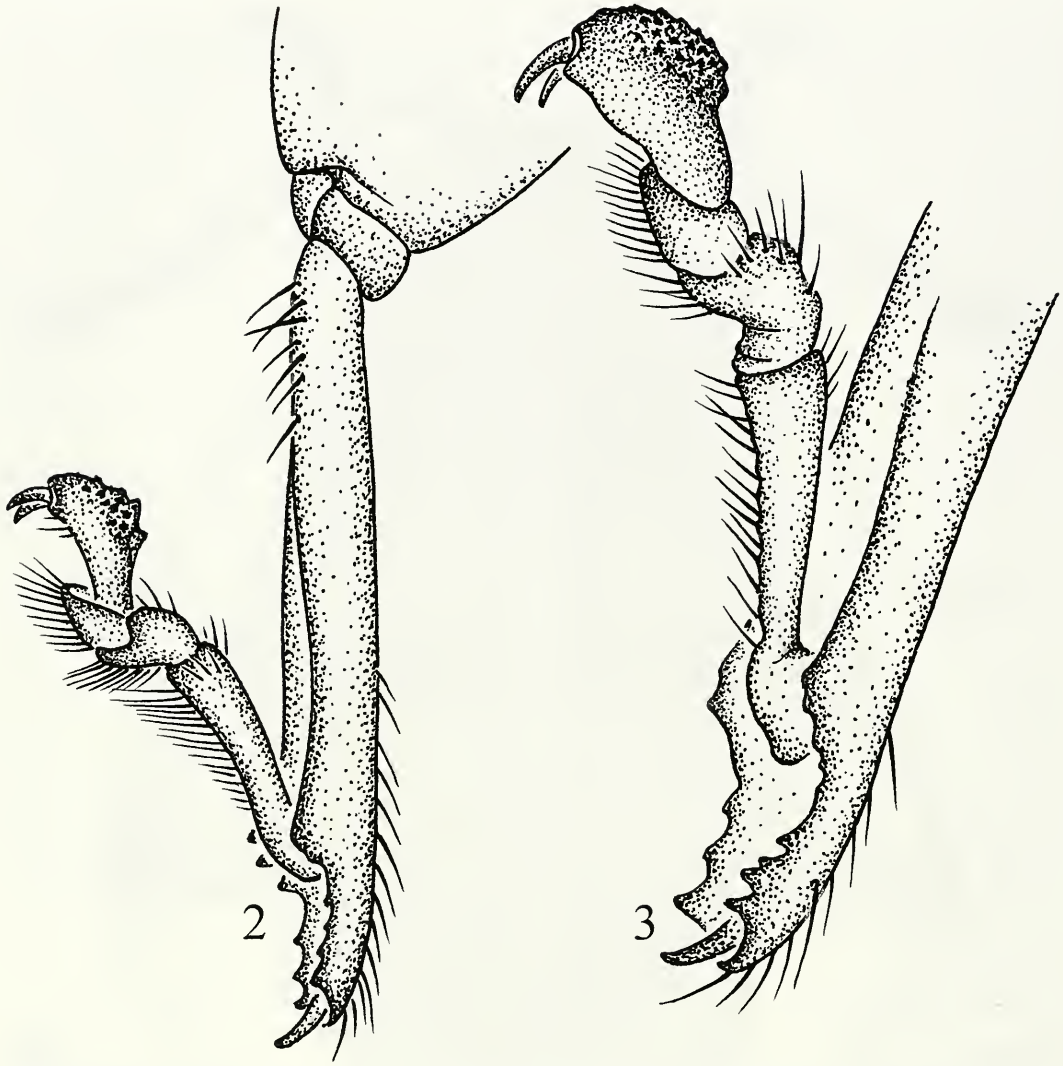


Fig. 1. *Laselvia triplehorni*. Dorsal habitus.

and coarser, more rugose punctation, elytra with more distinct basal calli, pronotum distinctly narrower at base than elytra and with protuberant medial area of disc, metatibia not extending far beyond metatarsal insertion, eyes small round, interocular distance at least twice that of the maximum eye width, and body size larger over 2.0 mm. It is less similar to *Hypolampsis* Clark, *Laselva* differing by oval body shape rather than elongate, evenly distributed dorsal pubescence rather than very dense patterned pubescence, coarse dorsal punctation, especially on



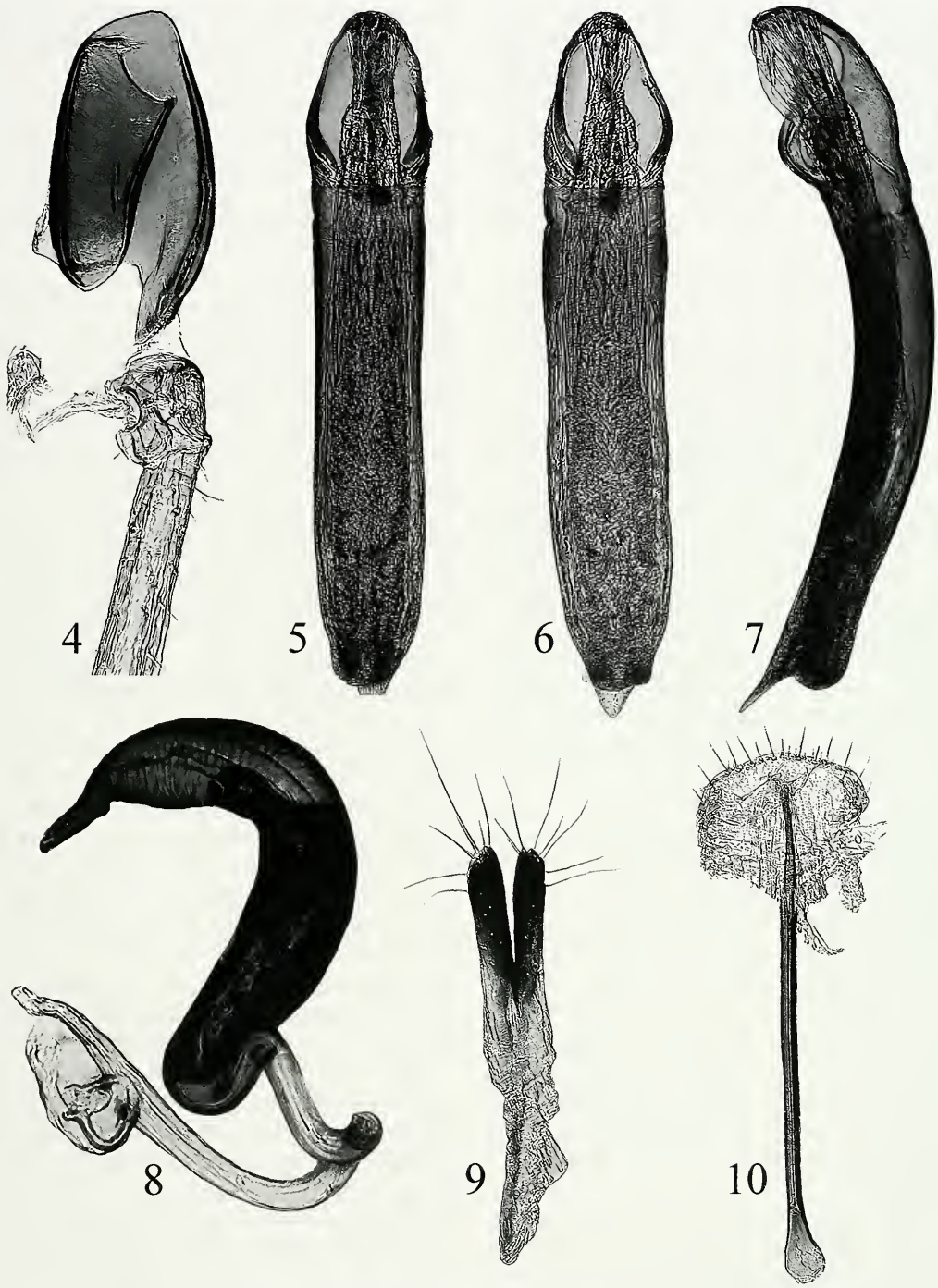
Figs. 2–3. *Laselvia triplehorni*. 2, Metatibia, medial view. 3, Metatibia, medial view, twisted and enlarged.

vertex and frons, extended metatibial apex. *Laselva* has somewhat similar oval body shape, metafemoral shape, and unusual metatarsal insertion to *Ulrica* Scherer, but differs in many characters such as the stout thickened antennal form, prominent elytral humeri and basal calli, coarse dorsal punctation, and dorsal pubescence.

Etymology.—By an arbitrary combination of letters in the female gender, this genus is named for La Selva Biological Station (Heredia, Costa Rica) where it was discovered as part of the ALAS Project. La Selva means "the forest" in Spanish, and this genus is only known from the canopy of the forest.

Laselva triplehorni Furth, new species
(Figs. 1–10)

Description.—Body dark brown. Dorsum (head, pronotum, elytra) covered



Figs. 4–10. *Laselvia triplehorni*. 4, Metafemoral spring lateral view. 5, Male aedeagus ventral view. 6, Male aedeagus dorsal view. 7, Male aedeagus lateral view. 8, Female spermatheca. 9, Female vaginal palpi. 10, Female tignum.

with dense golden pubescence – one seta associated with each puncture. Venter and femora reddish brown, tibiae light brown/yellow. Male body length: 1.01–1.80 mm. Female body length: 1.58–1.98 mm. Male maximum body width: 0.75–1.01 mm. Female maximum body width: 0.80–1.08 mm (just behind humeri).

Antenna (Fig. 1): Short, stout, extending only a little beyond humeri. Antennomeres 1 and 2 very swollen, dark brown, 3 to 7 light brown or yellow, 3 narrow subequal in length to 2, 4 shortest, narrow, 5 somewhat thicker (in male only) than 4 only slightly shorter than 3, 6 somewhat thickened like 5 and subequal to 5, 7 swollen, subequal in length to 2, 8 swollen, dark brown, subequal to 7, 9 and 10 swollen, dark brown, subequal to 8, 11 swollen, dark brown, distinctly longer than other antennomeres. Relative antennomere lengths: Male: 8:5:5:3:4:5:6:6:6:6:8. Female: 6:6:5:3:3:2:5:4:5:4:7. Antennomere number 6 is distinctly the smallest in female, not so in male.

Head: Above dark brown, below usually lighter brown, above entirely covered with dense coarse punctures (subrugose) each with seta, thus pubescent; depression just above longitudinal frontal carina, carina not evident due to punctures that extend to lower frons, below lower frons with lateral frontal carina angled laterally inflated, smooth; maxillary palp basally swollen apically tapered; eye large, oval, ventrally tapered, interocular distance (dorsally) subequal to maximum eye width.

Pronotum: Dark brown, evenly pubescent, narrow, anterior and posterior margins straight and subparallel; densely punctured with coarse punctures often contiguous, giving a subrugose appearance; anterolaterally evidently protruding, but not truly angled/beveled, anterolateral pore subapical (just behind anterior margin) with a very long seta subequal to pronotal length (Fig. 1); posterolaterally rounded; often with a sublateral, anterolaterally oriented depression giving an elevated appearance to the central pronotal disc. Male width: 0.50–0.65 mm. Female width: 0.54–0.69 mm. Male length: 0.24–0.27 mm. Female length: 0.24–0.27 mm.

Elytron: Dark brown, evenly pubescent, gradually tapered apically; striate with coarse punctures, each with a seta, setae also inserted on interstrial ridges; sparsely placed longer, dark, erect setae inserted on interstrial ridges; epipleura extending entire length of elytra ending subapically, laterally flattened and smooth throughout length; 10 striae, including scutellar striae (extending over half elytral length), strial punctures very deep, coarse, almost contiguous, giving the appearance of ridges/carinae between striae, each puncture with golden, posteriorly recumbent seta, giving the appearance of rather dense golden pubescence throughout elytra; base of each elytron centrally raised as distinct bossae (see Scherer 1983); humerus strong, prominent. Male length: 1.01–1.35 mm. Female length: 1.20–1.50 mm. Male maximum width: 0.36–0.50 mm. Female maximum width: 0.39–0.54 mm.

Legs: All tibiae lighter brown/yellow; metafemora darker brown, densely pubescent, very swollen/inflated, dorsoventral width approximately equal to width of elytron; male first foretarsal segment not evidently swollen; metatibia apically with medial dorsal margin excavated just beyond insertion of tarsus, with serrations especially apically, outer dorsal margin with strong serrations from apex extending basally past tarsal insertion almost to midtibia with fewer teeth basally (not indicated in figures) (Figs. 2, 3). Apical metatarsal segment globosely swollen, but not as spherical as in *Disigmoptera*, *Hypolampsis*, and

most "Sphaeronychini/Monoplatini" (Figs. 1–3).

Venter: Dark brown; prosternal process flat, hour-glass shaped; male with a dark longitudinal mark along midline of apical abdominal sternite.

Genitalia: Male Aedeagus: Ventrally smooth surfaced, parallel-sided gradually tapering to narrowly pointed apex (Fig. 5); dorsal view (Fig. 6); lateral view gradually curved (Fig. 7). Length = 0.55 mm. Female: Spermatheca: (Fig. 8), length = 0.20 mm, including ductus coil. Vaginal palpi: (Fig. 9), basally joined, length = 0.34 mm. Tignum: (Fig. 10), length = 0.55 mm.

Holotype.—Male (INBio): Costa Rica: Heredia, Est. Biol. La Selva 50–150 m. 10° 26′N 84° 01′W, Nov. 1993, INBio-OET; 6 Noviembre 1993, FMP/13/27, *Pentaclethra macroloba*; bar code no. INBIOCRI002257021.

Paratypes.—Males (INBio, USNM): Costa Rica: Heredia, Est. Biol. La Selva 50–150 m. 10° 26′N 84° 01′W, Jan. 1993, INBio-OET; 14 ENE 1993, ex *Virola koschnyi*, FVK/01/32; bar code no. INBIOCRI002256507. Jan. 1993, INBio-OET; 14 Enero 1993, ex *Virola koschnyi*, FVK/01/29; INBIOCRI002268996. Mar. 1993; 6 Marzo 1993, FPM/03/21, *Pentaclethra macroloba*; INBIOCRI02262785. May 1993; 7 Mayo 1993, FVK/06/14, *Virola koschnyi*; INBIOCRI002262660. ibid., INBIOCRI002262659. Jul 1993; 5 de Julio 1993, *Virola koschnyi*, FVK/09/02; INBIOCRI002256805. ibid., INBIOCRI002256807. ibid., FVK/09/04; INBIOCRI002262944. ibid., FVK/09/11; INBIOCRI002269027. Nov 1993; 6 Noviembre 1993, *Pentaclethra macroloba*, FPM/13/02; INBIOCRI002263253. ibid., FPM/13/08; INBIOCRI002257180. ibid., FPM/13/19; INBIOCRI002257032. ibid., FPM/13/20; INBIOCRI002257077. ibid., INBIOCRI002257074. ibid., INBIOCRI002257075. ibid., INBIOCRI002257076. 6 Noviembre 1993, *Pentaclethra macroloba*, FPM/13/30; INBIOCRI002257016. Nov 1993; 6 Noviembre 1993, FOT/14/39, *Sacoglottis trichogyna*; INBIOCRI002263005. ibid., FOT/14/13; INBIOCRI002262984. Nov 1993; 9 Noviembre 1993, *Virola koschnyi*, FVK/15/04; INBIOCRI002269357. ibid., FVK/15/05; INBIOCRI002269342. ibid., INBIOCRI002269343. ibid., INBIOCRI002269345. ibid., INBIOCRI002269346. ibid., INBIOCRI002269347. INBIOCRI002269348. ibid., FVK/15/20, INBIOCRI002269333. ibid., FVK/15/23, INBIOCRI002269337. Jan 1994; 5 Enero 1994, *Vitex cooperi*, FOT/16/30; INBIOCRI002268889. Oct 1994; 14 Octubre 1994, FPM/23/01, *Pentaclethra macroloba*, INBIOCRI002270122. ibid., FVK/23/04, Virola koschnyi; INBIOCRI002269772. ibid., FPM/23/15; INBIOCRI002269725. ibid., FPM/23/19; INBIOCRI002269872. ibid., *Pentaclethra macroloba*, FPM/23/28; INBIOCRI002270104. ibid., INBIOCRI002270103. ibid., FPM/23/31; INBIOCRI002269739. ibid., FPM/23/35; INBIOCRI002269700. ibid., FPM/23/36; INBIOCRI002269754. Oct 1994; 20 Octubre 1994, *Virola koschnyi*, FVK/27/15; INBIOCRI002286337. ibid., FVK/27/21; INBIOCRI002285906. Dec 1999; FOT/43/04; *Minquartia guianensis*; INBIOCRI002726447. Jan 2000; 04 Enero 2000, FOT/45/32, *Pouruma minor*; INBIOCRI002725464. 05 Enero 2000, *Eugenia* sp., FOT/46/03; INBIOCRI002725749. ibid., FOT/46/11; INBIOCRI002725885. ibid., FOT/46/11; INBIOCRI002725885. ibid., FOT/46/20; INBIOCRI002725999. ibid., FOT/46/26; INBIOCRI002726018.

Females (INBio, USNM): Costa Rica: Heredia, Est. Biol. La Selva 50–150 m. 10° 26′N 84° 01′W, Jan. 1993, INBio-OET; 14 Enero 1993, *Virola koschnyi*, FVK/01/09; INBIOCRI002268989. ibid., INBIOCRI002268990. ibid., FVK/01/31; INBIOCRI002262415. Mar 1993; 5 Marzo 1993, FOT/02/14, *Carapa guianensis*; INBIOCRI002256546. Jul 1993; 4 Julio 1993, *Pentaclethra macroloba*,

FPM/08/40; INBIOCRI002263649. ibid., 5 Julio 1993, *Virola koschnyi*, FVK/09/15; INBIOCRI002268750. ibid., FVK/09/26; INBIOCRI002269284. Sep 1993; 3 Setiembre 1993, FOT/10/34, *Tapirira guianensis*; INBIOCRI002256861. Nov 1993; 6 Noviembre 1993, FPM/13/25, *Pentaclethra macroloba*; INBIOCRI 002257028. ibid., INBIOCRI0022570237. ibid., FPM/13/26; INBIOCRI002269084. ibid., FPM/13/38; INBIOCRI002262329. ibid., FPM/13/34; INBIOCRI002269089. Nov. 1993, 9 Noviembre, *Virola koschnyo*, FVK/15/05; INBIOCRI002269344. Jan 1994; 5 Enero 1994, *Vitex cooperi*, FOT/16/03, INBIOCRI002268904. ibid., FOT/16/19; INBIOCRI002268808. ibid., FOT/16/24; INBIOCRI002268788. Oct 1994; 8 Octubre 1994, FVK/19/14, *Virola koschnyi*, INBIOCRI002269593. ibid., FVK/19/20; INBIOCRI002269671. ibid., 14 Octubre 1994, FPM/23/07, *Pentaclethra macroloba*, INBIOCRI002269732. ibid., FPM/23/08; INBIOCRI002269805. ibid., FPM/21/19; INBIOCRI002269873. ibid., FPM/23/23; INBIOCRI002269814. ibid., FPM/23/34; INBIOCRI002269787. ibid., FPM/23/36; INBIOCRI002269755. ibid., INBIOCRI002269753. ibid., FPM/23/37; INBIOCRI002269746. Dec 1999; 29 Diciembre 1999, *Inga leiocalycina*, FOT/42/15; INBIOCRI002725670. ibid., FOT/42/30; INBIOCRI002725711. ibid., FOT/41/32, *Tachigalis costaricensis*; INBIOCRI002725157. Jan 2000; 04 Enero 2000, *Pouruma minor*, FOT/45/04; INBIOCRI002725478. ibid., 05 Enero 2000, *Eugenia* sp., FOT/46/08; INBIOCRI 002725857. ibid., FOT/46/37; INBIOCRI002725734. ibid., FOT/46/40; INBIOCRI002725985. ibid., FOT/46/21; INBIOCRI002725773.

Etymology.—This species is named for Dr. Charles A. Triplehorn (Prof. Emeritus, The Ohio State University, Columbus, Ohio) who was the author's M.Sc. advisor as well as an inspiration and a colleague for many years since.

Discussion

Specimens described above were taken by canopy fogging from 11 species of trees (numbers of specimens in parentheses): *Pentaclethra macroloba* (Fabaceae) (33), *Virola koschnyi* (Myristicaceae) (28), *Sacoglottis trichogyna* Cuatrec. (Humiriaceae) (2), *Vitex cooperi* Standl. (Lamiaceae) (4), *Minquartia guianensis* Aubl. (Olacaceae) (1), *Pouruma minor* Benoist (Cecropiaceae) (2), *Eugenia* sp. (Myrtaceae) (8), *Carapa guianensis* Aubl. (Meliaceae) (1), *Tapirira guianensis* Aubl. (Anacardiaceae) (1), *Inga leiocalycina* Benth. (Fabaceae) (2), *Sclerobium costaricense* N. Zamora & Poveda (Fabaceae) (1). Although the larger numbers are associated with *P. macroloba* and *V. koschnyi* these are also the most common trees and there is no clear dominant tree species. Therefore, it is assumed that none of these tree species is necessarily the true food plant of *Laselva triplehorni*. Certainly its food plant is a canopy plant species, but further closer investigation is necessary, possibly using more careful host plant association sampling methods like those in Novotny and Basset (2000) in order to reliably determine the food plant. The plant association results for *L. triplehorni* typify the results in Furth et al. (2003) that rather surprisingly there was relatively little tree species effect from fogging. The ALAS fogging program was structured to investigate the effect of tree species on fogging efficiency. The expectation was that if there were some degree of host specificity among arthropods, then fogging multiple species of trees would produce more species than fogging single species of trees. There are all degrees of host specificity in Alticinae, although in the author's experience, more often species are at least oligophagous – feeding on several genera/species of the same plant family. It may be that in rainforests the complexity of individual tree crowns masks any tree species

effect. Fairly large-scale canopy fogging as carried out here captures arthropods from a column of fogged vegetation. Although that column contains primarily the crown of the focal tree, it also contains the edges of adjacent crowns, lianas in the focal tree, and countless species of epiphytes.

Only one species is currently known in the genus.

Considerable confusion with the use of the names "Monoplatini" and "Sphaeronychini", including by myself, calls for some clarification. Clark (1860) published the first somewhat comprehensive treatment of this group – "Monoplatini" and he referred to Dejean (1836–1837, p. 407) as the original description for the type genus *Monoplatus*. Scherer (1962, 1983) considered the valid genus to be *Monoplatus* Clark (1860) with the type species *M. nigripes* Clark. Clark (1860) described 42 genera and 245 species; however, as indicated by Scherer (1962, 1983) there is considerable ambiguity and confusion in this group, beginning with the use of maxillary palpi by Clark (1860). Scherer (1962, 1983) discussed the problems of this group and stated that in the Coleopterorum Catalogus (Heikertinger and Csiki 1939–1940) further confusion occurred because some genera were incorrectly combined. Scherer (1962, 1983) included keys to 35 Neoptropical genera of this group, plus 3 not included in his keys, and synonymized several genera, including *Sphaeronychus* Dejean, *in litteris* and *Metriotes* Clark, 1869, as junior under *Monoplatus*. Scherer (1962 only) included a checklist of the genera and species of the "Monoplatini" with many new combinations and some new synonymies. Seeno and Wilcox (1982) included a list of 45 genera of this group (reflecting the additional genera described by Jan Bechyné) in 3 groupings, but indicated that the use of the type genus *Monoplatus* Clark, 1860, had been preceded by the use of *Sphaeronychus* Dejean, 1837. This was also stated in Monrós and Bechyné (1956). The detailed explanation for the above is as follows: In the second edition of Dejean's Catalogue des Coléoptères (1833–1836), on page 383 both *Sphaeronychus* Dejean [misspelled as *Sphraeronychus*] (with three species: *excelsus* Dejean, *cinctipennis* Dejean, and *melanurus* Olivier) and *Monoplatus* Chevrolat (with two species: *rubicundus* Dejean and *dimidiatus* Dejean) were listed, the same was repeated on page 407 of Dejean's third edition, 1837. *S. excelsus* Dejean, *S. cinctipennis* Dejean are apparently *nomina nuda*, but *S. melanurus* Olivier was originally described as *Altica* by Olivier (1808). Both *M. rubicundus* Dejean and *M. dimidiatus* Dejean are also apparently *nomina nuda*; therefore, *Sphaeronychus melanurus* (Olivier) is the type species and *Monoplatus* is a synonym of *Sphaeronychus* as stated in Monrós and Bechyné (1956). The explanation of the correct year of publication is as follows: According to Barber and Bridwell (1940) pages 361–443 of Dejean's second edition were published in 1837 (see also White 1970). However, as Madge (1988) and Pope (1992) pointed out the second edition of Dejean was actually published in 1836 and the genera attributed to Chevrolat in Dejean's second edition were described by Chevrolat and should be quoted as Chevrolat in Dejean and this was recently corroborated by Bousquet (2004). However, in this case *Sphaeronychus* was not listed by Dejean as a Chevrolat name; therefore, I now prefer to use *Sphaeronychus* Dejean 1836 as the type genus of this still dubious tribal group name "Sphaeronychini" as was indicated in Seeno and Wilcox (1982).

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Literature Cited

Adis, J., Y. Lubin, and G. G. Montgomery. 1984. Arthropods from the canopy of inundated and terra firme forests near Manaus, Brazil, with critical considerations on the pyrethrum-fogging technique. Studies on Neotropical Fauna and Environment 19: 223–236.

Barber, H. S. and J. C. Bridwell. 1940. Dejean catalogue names (Coleoptera). Bulletin of the Brooklyn Entomological Society 35(1): 1–12.

Bousquet, Y. 2004. The works of PFMA Dejean, with emphasis on publication dates and new carabid taxa proposed. Fabreries 29: 33–48.

Clark, H. 1860. Catalogue of the Halticidae in the collection of the British Museum. Physapodes and Oedipodes, Part 1. London: Printed by order of the trustees. 301 pp. 10 plates.

Colwell, R. K. 1996. Biota: The Biodiversity Database Manager. Sinauer Associates, Sunderland, Massachusetts.

Dejean, P. F. M. A. 1833–1836. Catalogue des Coleoptères de la collection de M. le Compte Dejean. – 2nd Ed. (443 pp.) (Fascicle 5, pp. 361–443, end 1836) [includes descriptions by L. A. A. Chevrolat].

———. 1836–1837. Catalogue des Coleoptères de la collection de M. le Compte Dejean. Troisième Edition, Revue, Corrigée et Augmentée. xiv + 503 pp. (Fascicle 5, pp. xiv + 385–503, May 1837).

Erwin, T. L. 1983. Beetles and other insects of tropical forest canopies at Manaus, Brazil, sampled by insecticidal fogging. *In* Sutton, S. L., T. C. Whitmore, and A. C. Chadwick, eds. Tropical Rain Forest: Ecology and management. Blackwell Scientific, Oxford, UK. 512 pp.

Furth, D. G. 1989. Metafemoral spring studies of some Neotropical genera of Alticinae, pp. 410–510. *In* Furth, D. and T. Seeno, eds. Proceedings of the Second International Symposium on Chrysomelidae. Entomography. vol. 6.

Furth, D. G. and J. E. Lee. 2000. Similarity of the *Blepharida*-Group genera using larval and adult characters (Coleoptera: Chrysomelidae: Alticinae). Journal of the New York Entomological Society 108(1–2): 26–51.

Furth, D. G. and K. Suzuki. 1994. Character correlation studies of problematic genera of Alticinae in relation to Galerucinae. (Coleoptera: Chrysomelidae), pp. 116–135. *In* Furth, D. G., ed. Proceedings of the Third International Symposium on the Chrysomelidae, Beijing, 1992. Backhuys Publishers, Leiden. 150 pp.

———. 1998. Studies on Oriental and Australian Alticinae genera, based on the comparative morphology of the metafemoral spring, genitalia, and hind wing venation, pp. 91–124. *In* Biondi, M., M. Daccordi, and D. Furth, eds. Proceedings of the Fourth International Symposium on the Chrysomelidae. Atti Museo Regionale Scienze Naturali Torino 1998. 327 pp.

Furth, D. G., J. Longino, and M. Paniagua. 2003. Survey and quantitative assessment of flea beetle diversity in a Costa Rican rainforest (Coleoptera: Chrysomelidae: Alticinae), pp. 1–23. *In* Furth, D. G., ed. Topics in Leaf Beetle Biology: Proceedings of the Fifth International Symposium on the Chrysomelidae, 25–27 August 2000, Iguassu Falls, Brazil. XXI International Congress of Entomology. Pensoft Publishers, Sofia. 337 pp.

Gamez, R. 1991. Biodiversity conservation through facilitation of its sustainable use: Costa Rica's National Biodiversity Institute. Trends in Ecology and Evolution 6: 377–378.

Heikertinger, F. and E. Csiki. 1939–1940. Chrysomelidae, Halticinae. Coleopterorum Catalogus. Volume XXV, Pars 166, pp. 1–336, Pars 169. pp. 337–635. Uitgeverij Dr. W. Junk, Gravenhage.

Janzen, D. H. 1991. How to save tropical biodiversity. American Entomologist 37: 159–171.

McDade, L. A., K. S. Bawa, H. A. Hespenheide, and G. S. Hartshorn, eds. 1993. La Selva, ecology and natural history of a Neotropical rainforest. University of Chicago Press, Illinois, USA. 486 pp.

Madge, R. B. 1988. The publication dates of Dejean's catalogues. Archives of Natural History 15: 317–321.

Monrós, F. and J. Bechyné. 1956. Über einige verkannte Chrysomeliden-Namen. Entomologische Arbeiten Museum G. Frey 7: 1118–1137.

Novotny, V. and Y. Basset. 2000. Rare species in communities of tropical insect herbivores: Pondering the mysteries of singletons. Oikos 89: 564–572.

Olivier, A. G. 1808. Entomologie ou Histoire Naturelle des Insectes. 6: 613–1104.

Pope, R. D. 1992. The authorship of certain genera first defined in the catalogues of Dejean. Coccinnella 4(1/2): 17–18.

Reid, C. A. M. 1995. A cladistic analysis of subfamilial relationships in the Chrysomelidae *sensu lato* (Chrysomeloidea), pp. 559–631. *In*

Pakaluk, J. and S. A. Slipinski, eds. Biology, Phylogeny, and Classification of Coleoptera. Muzeum i Instytut Zoologii PAN, Warzawa, 2 vols., 1092 pp.

Riley, E. G., S. M. Clark, and T. N. Seeno. 2003. Catalog of the leaf beetles of America north of Mexico (Coleoptera: Megalopodidae, Orsodcnidae, and Chrysomelidae, excluding Bruchinae). The Coleopterists Society, Special Publication No. 1, 290 pp.

Scherer, G. 1962. Bestimmungsschlüssel der neotropischen Alticinen-Genera (Coleoptera: Chrysomelidae: Alticinae). Entomologische Arbeiten Museum G. Frey 13(2): 497–607.

———. 1983. Diagnostic key for the Neotropical Alticine genera (Coleoptera: Chrysomelidae: Alticinae). Entomologische Arbeiten Museum G. Frey 31/32: 1–89.

Seeno, T. N. and J. A. Wilcox. 1982. Leaf beetle genera (Coleoptera: Chrysomelidae). Entomography 1: 1–221.

Stork, N. E. 1988. Insect diversity: facts, fiction, and speculation. Biological Journal of the Linnaean Society 35: 321–337.

White, R. E. 1970. Authorship of the genus *Phyllotreta* (Chrysomelidae: Coleoptera). Proceedings of the Entomological Society of Washington 72(3): 388–389.